Summary Recommendations

AQUATIC ISSUES

ANADROMOUS FISH

Anadromous Salmonid Reintroduction (E.3.1-2, Chapters 1-11)

The anadromous fish study by the Applicant concluded that the habitat within and above the HCC has been drastically altered. Most of the former habitat of summer steelhead and spring/summer chinook is block by dams and irrigation diversions. The streams have been degraded to the point where those that are accessible would not produce the number of smolt that they did prior to European settlement. Fall chinook salmon habitat would be available in the mainstem river, but it is highly polluted by agricultural and urban waste. The water available in most tributaries and the mainstem river has been diverted to the point where flows that were once available for spawning fall chinook are greatly diminished.

The greatest impediment to reintroduction of anadromous fish may be the extremely low smolt-to-adult returns that would be expected. The loss of smolt at each of the dams in the Columbia and Snake rivers would be so great that few adults would return to spawn. It is believed that the runs could not be self sustaining due to smolt and adult passage mortalities. The data supports the Applicant's contention that the hatchery mitigation program is the only current means of sustaining the Snake River anadromous genetic stocks.

The BLM will support the NOAA Fisheries position on anadromous fish reintroduction. The BLM will continue to support reintroducing anadromous fish. The BLM recommends that the Applicant fund a permanent anadromous fish reintroduction committee. The committee members would include at least the Tribes, ODFW, IDFG, IPC, WDFG, NOAA Fisheries, USFS and BLM. The purpose of the committee would be to continue exploring all aspects of reintroducing anadromous fish. They would be charged with, but not limited to; recommending studies to verify Applicant assumptions concerning habitat quality and quantity, fall chinook egg to smolt survival in Snake River above the HCC, and smolt migration through the HCC, ect.

Fall Chinook Salmon Of the Hells Canyon Reach (E.3.1-3, Chapters 1-3)

The Applicant conducted extensive spawning ground counts and studies of fall chinook salmon using the Snake River between Hells Canyon Dam and Lower Granite Reservoir. They concluded that the reach is significantly under-seeded. They believe the reach could sustain more than 2000 redd sites. They also concluded that the water temperatures produced by the HCC are warmer in the fall and colder in the spring than were found under original conditions. Although juvenile chinook are late in emerging from the gravel, the Applicant believes that they are not harmed by the delay. They theorize that the river now is similar to the Marsing Reach near Thousand Springs, Idaho that once produced the majority of the fall chinook run. The NOAA Fisheries, however, believes

that the delay in hatching causes a delay in smolt migration from the Hells Canyon Reach. A delay in migration is known to cause low survival when the smolt reach Lower Granite Reservoir due to the warmer temperatures that are developed by summer river warming. The BLM supports the NOAA Fisheries position that the Applicant should develop an inflow-equals-outflow-at minimum-pool flow scenario to determine whether water temperatures can be brought closer to the historic norm. BLM also supports NOAA Fisheries point to evaluate the installation of a selective withdrawal structure on Brownlee Dam to return the temperatures to the historic regines.

The hatchery mitigation program will be continued. The Applicant plans to upgrade their facilities to meet new objectives and standards for hatcheries in the Columbia Basin. The number of hatchery-produced fish will remain approximately the same. However, it is believed that the upgraded facilities will meet the smolt targets set in the Settlement Agreement more frequently than in the past. Previously, they met their targets approximately 70% of the time. They will try to increase their fall chinook production to meet the original 1,000,000 smolt target. Meeting that target is dependent on eggs from the Washington Department of Fisheries Lyons Ferry Hatchery. The BLM suggests that the mitigation program should set up an annual budget for meeting the 1,000,000 fall chinook smolt target. When eggs are not available to meet production targets, the surplus funds should be used to improve other hatchery operations or enhance habitat.

Summer Steelhead

The BLM supports the native fish plan proposed by the Applicant. However, the BLM believes the Applicant should stock adult surplus hatchery steelhead captured below Hells Canyon Dam into Pine Creek as part of this plan, as long as IDFG and ODFW agree. Summer steelhead would spawn in their historic habitat now used by isolated bull trout populations. Carcasses would provide marine-derived nutrients to the stream and riparian zone. The juveniles would provide forage for bull trout. Surviving smolt would be trapped at the weir to be constructed at the mouth of Pine Creek. The smolt would then be transported and released below Hells Canyon Dam. The progeny of stocking adult steelhead could be used to determine summer steelhead production levels for Pine Creek. These actual smolt numbers could be used to verify the Applicant's estimates in E.3.1-2 chapter 8 of the anadromous fish reintroduction studies.

Stocking of summer steelhead in Indian Creek and Wildhorse River should also be considered if IDFG and ODFW agree. This would provide forage for bull trout and marine-derived nutrients to these streams. The proposed fish-trap at Oxbow dam would facilitate the transport of steelhead over Oxbow dam so they could access Wildhorse River.

Pacific Lamprey

The Applicant conducted a literature review for Pacific lamprey. They made no recommendations to compensate for the loss of this anadromous fish that once accessed habitat above the HCC. Pacific lamprey have difficulties ascending the dams on the Columbia and Snake River. They are believed to have no fidelity to their natal streams. The BLM believes that mitigation recommendations should be developed for the loss of

Pacific lamprey. The BLM recommends that the Applicant and NOAA Fisheries cooperate to reintroduce Pacific lamprey to streams within or above the HCC. A trap and haul of adult lamprey from Bonneville dam to within and above the HCC could be developed as a pilot research project. Based on available information, the lamprey should stay in the streams where they are stocked and spawn. Based on the literature review by the Applicant, juvenile lamprey are believed to pass through turbines without being harmed.

NATIVE FISH

Bull Trout

The Applicant conducted extensive research on bull trout within the Hells Canyon reservoir and its tributaries. They conducted research below the Hells Canyon Dam to a lesser extent, and the BLM believes that the Applicant needs to continue their studies to determine the affects of HCC operations on populations in the Hells Canyon Reach. They have proposed to develop a native salmonid plan to recover bull trout populations in the Hells Canyon Reservoir and its tributaries. The plan includes trapping and transporting bull trout over Hells Canyon and Oxbow dams to create a genetic infusion with resident populations in Indian Creek, Pine Creek, and Wild Horse River. They also propose habitat improvements in Pine Creek. They propose eradication of brook trout in Indian Creek to prevent hybridization as well as the construction of a fish monitoring weir at the mouth of Pine Creek. They propose working with landowners in the Pine Creek valley to improve habitat. BLM Supports those portions of this plan that are supported by FWS, ODFW and IDFG.

The BLM believes that the Applicant should include inventories of the Eagle Creek Basin in the plan. Bull trout were present until the 1980s and have been thought to be extirpated although no thorough studies of the wilderness reaches of Eagle Creek have been conducted to determine whether remnant populations remain. The trap and haul method of reintroduction planned for Hells Canyon and Oxbow dams should be considered for Brownlee Dam if the technique is successful at the other two.

The BLM believes that the Applicant should provide a complete monitoring plan for native fish. It is unclear how the Applicant plans to monitor the results of implementing the native fish plan. The plan should include proposed, sampling locations, target species, as well as temporal and spatial schedules. The monitoring plan should be subject to scientific peer-review.

White Sturgeon

The Applicant's research on white sturgeon extended from Swan Falls Dam to Lower Granite Reservoir. They determined that the population in the Hells Canyon Reach was healthy and has gradually increased in size and number. They found that the population within the HCC reservoirs has not increased in thirty years and is nearly extinct. They found that one healthy but small population exists in the river approximately ninety miles upstream from Brownlee Reservoir. The Applicant explored the possibility of

constructing white sturgeon fish passage structures at the HCC dams. They concluded that such facilities were too costly and there was a high level of uncertainty as to whether white sturgeon would use them.

The Applicant has developed a white sturgeon plan. As part of the plan, the Applicant has proposed a trap-and-haul operation for moving selected individual sturgeon. This would promote genetic interchange among populations that are isolated by the dams within the Snake River. The state fisheries agencies will need to agree to the plan before it can be implemented. The plan faces several formidable challenges. The plan will only be practical if water quality conditions in the HCC reservoirs and the Snake River above the HCC can be improved. Low oxygen levels in the HCC reservoirs are a major problem and lack of suitable spawning flows within the reservoirs is another limiting factor. The BLM, nevertheless, should support the Applicant's white sturgeon plan if ODFW and IDFW do.

Additionally, the BLM believes that the Applicant should explore the possibility of installing a generating plant in the Oxbow Bypass Reach that could pass approximately 2000 cfs. This plant would improve water quality in the bypass by infusing oxygen and creating flows that could encourage successful white sturgeon spawning.

Redband Trout

The BLM supports the plan to improve habitat through the Applicant's native fish plan. However, the BLM believes that the Applicant should extend its native fish plan to include Brownlee Reservoir and its tributaries. Additionally, the applicant needs to provide a complete monitoring plan to assess the success of the native fish plan. This plan must also be approved by IDFG and ODFW.

The research of the Applicant revealed that redband trout move into tributaries during the spring and summer months to spawn and rear. They return to the reservoirs to spend the cold winter months. They found this pattern to be the same in the Hells Canyon Reach where they return to the mainstem Snake River. The Applicant found that redband trout in the reservoirs suffered from low body weight (W_r). This may be related to food supply or to poor water quality caused stress. The Applicant surveyed tributary access for redband trout both below and within the HCC. They found that a number of culverts on tributaries to the reservoir do not meet fish passage standards, and they indicate they are developing a proposal to remedy them. BLM supports IPC in modifying these culverts to meet fish passage standards. The Applicant found no tributaries below the HCC that had access problems. They found that some redband trout have hybridized with hatchery rainbow but the extent is limited to the lower reaches of a few tributaries of the reservoirs and is not considered a serious problem. They recommended planting sterile triploid rainbows to prevent hybridization with redband trout. They believe that the native resident fish plan will result in improved conditions for redband trout as well as bull trout.

NON-NATIVE SPORT FISH

The BLM supports the proposed warmwater fish plan if it is verified and supported by ODFW and IDFW. The Applicant's studies of warmwater fish focused on smallmouth bass, crappie spp., and catfish. Based on their findings they have developed a warmwater fish plan that will provide stable water levels for warmwater species that spawn in the spring of the year. The findings indicate that reservoir fluctuations affect spawning survival but flow year determines the survival of fry. High flow years result in poor crappie survival. The higher velocities entrain the pelagic juveniles through the dams and on down the Snake River. However, IPC as exceeded the reservoir level drafting requirements of the Army Corps of Engineers (ACOE) for spring flood control in at least 1994, 1999 and 2000, which has probably affected warm water fish populations. IPC should provide impact analysis of their additional drawdowns durning the year. The warmwater fish plan will provide an opportunity for good year class survival, but the water year will ultimately determine whether a good year class will occur.

FOOD BASE and INVERTEBRATES

The benthic macroinvertebrate studies found that the population was abundant and composed of those organisms that could tolerate the flow fluctuations caused by the HCC. They found that the 17.2 miles below the Hells Canyon Dam had a depressed population of macroinvertebrates that is probably caused by low oxygen levels during the summer months. The food supply of macroinvertebrates for most species of fish was considered to be abundant. It was noted in the fish community studies that some species in the reservoirs, i.e. rainbow trout and yellow perch, have a below normal body weight (W_r). It is theorized that this may be due to poor water quality and not a lack of food availability.

The BLM agrees with these findings. They comport with the water quality information that is available in the draft license. The BLM believes that this data supports its position that water quality must be improved both within and below the HCC.

The BLM believes that the finding of the ESA listed Bliss Rapids Snail in the Hells Canyon Reach by the Applicant should be further explored. The concept of multiple populations that form a meta-population is important to survival of a species. The FWS should be consulted concerning future Applicant studies.

FLOW

Flow scenarios

Idaho Power Company failed to develop a range of acceptable flow scenarios and analyze their effects on key resources. There is no connection between flow scenarios and predicted effects. IPC must complete this analysis as well as include the NOAA Fisheries required flow augmentation which start in July.

WATER QUALITY

Oxygen

Oxygen levels throughout the Hells Canyon Complex do not meet state water quality standards for Idaho and Oregon. The oxygen depletion in Brownlee Reservoir is so severe that it has resulted in fish kills. Most recently oxygen depletion in the tailrace of Hells Canyon dam killed a large number of adult hatchery summer steelhead (October 2002). The high nutrient input from upstream sources creates massive algal blooms that deplete the oxygen in Brownlee Reservoir. The oxygen depleted water flows through Oxbow and Hells Canyon reservoirs and is re-oxygenated approximately 7 miles below Hells Canyon Dam at Wild Sheep Rapids. The TMDL process that the Applicant refers to as a means to reduce oxygen demand is unlikely to be fully effective for decades. The TMDLs will require the states of Oregon and Idaho to impose restrictions on agricultural and urban pollution that will take many years to implement. Therefore, the proposals by the Applicant to add oxygen to the HCC by venting units at Brownlee Dam and aerating Brownlee Reservoir are the only effective actions that can achieve results during the term of the new license.

The Applicant proposes to increase oxygen levels in the HCC reservoirs by aerating Brownlee Reservoir, venting (inserting oxygen) the turbines of units 1 through 4 at Brownlee Dam and explore venting unit 5. These measures are designed to increase oxygen levels throughout the HCC and below Hells Canyon Dam.

The BLM supports these measures but believes the Applicant needs to develop alternatives should these measures not succeed. Alternatives could include additional venting of turbines at Oxbow and Hells Canyon dams or additional aeration units in Oxbow and Hells Canyon reservoirs.

Temperature

The Applicant does not propose to develop any mitigation measures for the elevated water temperatures in the fall or the colder than normal outflow temperatures in the winter from Hells Canyon Dam. The Applicant has worked with the states of Oregon and Idaho's Department of Environmental Qualitys to develop TMDL's. The Applicant and states have agreed that the inflow temperatures to the HCC cannot be changed. Therefore, the Applicant does not plan to take any actions with regard to temperature.

The BLM supports the NOAA Fisheries position that the Applicant should model an inflow-equals-outflow at minimum-pool flow scenario to determine whether water temperatures coming out of Hells Canyon Dam could be closer to the Snake River inflow temperatures at the upper end of Brownlee Reservoir. BLM also supports NOAA Fisheries suggestion for IPC to evaluate the installation of a selective withdrawal structure in Brownlee Dam to restore historic temperature regimes.

Total Dissolved Gas

Total Dissolved Gas (TDG) is elevated during periods when the flow of the Snake River exceeds the turbine capacity of 30,000 cfs. TDG levels are elevated in Oxbow and Hells Canyon reservoirs by the spilling of excess flow starting at Brownlee Reservoir. Each of

the three dams contributes to the elevation of TDG that is above the 110% state standard when spilling occurs. The elevated TDG extends from Brownlee Dam to Lower Granite Reservoir during spilling.

The Applicant proposes to install flow deflectors in the Hells Canyon Dam spillway to decrease TDG. There are two problems associated with this proposal. There is some level of uncertainty about how well the deflectors will work on a dam as high as Hells Canyon Dam. The elevated TDG carried down from Brownlee and Oxbow will be above the state 110% standard and cannot be diminished by the Hells Canyon Dam deflectors.

The BLM believes the Applicant needs to take measures to address the elevated TDG caused by spilling at Brownlee and Oxbow dams as well as at Hells Canyon Dam.

The Applicant proposes to continue the practice of spilling through the lower spillgate at Brownlee Dam to minimize the TDG. This procedure is inadequate, based on the data documenting elevated TDGs below Brownlee Dam. Although this procedure may be somewhat helpful, the BLM believes it to be inadequate. Further analysis and mitigation is needed to comply with water quality standards.

GEOMORPHOLOGY and SEDIMENT

The BLM disagrees with the conclusions of the Applicant regarding sediment transport. The Applicant does not propose any protection, mitigation, and enhancement measures that would meet any of the six stated preliminary terms and conditions of the BLM. The Applicant maintains that the Snake River below Hells Canyon Dam is stable and has been in its current condition for thousands of years with the exception of the "slug" of sediment created by early European anthropogenic activities in the watershed. The Applicant promulgates the concept that, because the Snake River has been stable since the Pleistocene Era, the Hells Canyon Complex has had no affect on the sediment supply or geomorphology.

The BLM believes that the Applicant has not accurately depicted the negative affects of the Hells Canyon Complex on the Snake River below Hells Canyon Dam. The BLM believes that the sediment study conducted in Brownlee Reservoir is inaccurate. The sampling scheme does not meet the scientific standards of peer reviewed rigor. The methods and frequency of sampling are inaccurate and biased to create the premise that the 62,000 acre-feet of sediment trapped in Brownlee Reservoir would not have contributed to the sediment budget of the Hells Canyon Reach (from Hells Canyon Dam to the Salmon River).

IMPACTS BELOW the MOUTH of the SALMON RIVER

The Applicant's studies do not include the Snake River below the mouth of the Salmon River to Captain John Creek. The white sturgeon and fall chinook studies reference findings from other researchers that mention this river reach. IPC muct complete this analysis.

ADDITIONAL STUDY NEEDS or INFORMATION REQUESTS

Fall Chinook Salmon

The river temperatures of the Hells Canyon Reach are altered by the reservoirs from pre-project conditions. The NOAA Fisheries has raised a concern that warmer river temperatures in the fall and cooler temperatures in the spring are causing smolt out-migration delays. The BLM requests that the Applicant model an inflow-equals-out-flow at minimum-pool flow scenario. This scenario would determine whether the temperatures could be more closely aligned with the inflow to Brownlee Reservoir. These temperature adjustments would ultimately improve the potential for an earlier out-migration of fall chinook smolts. Late migration of smolt from the Snake River has been determined to cause low survival.

The BLM requests that the Applicant study the feasibility of installing a selective withdrawal structure at Brownlee Dam to regulate water temperatures throughout the complex.

Pacific Lamprey

The BLM requests that the Applicant determine the status of Pacific lamprey in tributaries below Hells Canyon Dam to better assess how they may be re-established above the complex.

The BLM requests that the Applicant to study the possibility of trapping and transporting adult migrant Pacific lamprey from below Bonneville Dam to the HCC project area. The purpose of this study would be to determine a means to restore Pacific lamprey that are currently believed to be declining in the upper Columbia and Snake Basins due to their poor ability to pass over mainstem dams. Pacific lampreys are an important source of marine-derived nutrients and a food source for tribes and many terrestrial and aquatic species.

Bull Trout

The BLM requests that the Applicant continue studies of bull trout below Hells Canyon Dam to determine what, if any, affect the hydropower operations are having on the fluvial population. Study emphasis should be aimed at determining the relative health and abundance of the population (similar to the sturgeon study). Continued work should be conducted on the life history patterns exhibited by the species with an emphasis on that portion of the population residing in the Hells Canyon Reach during summer months.

The BLM requests that the Applicant conduct a study of the Eagle Creek watershed to determine whether remnant bull trout populations may yet be present.

The BLM requests that the Applicant study the possibility of reintroducing bull trout to Brownlee Reservoir as part of it resident fish plan after water quality is improved and after it is concurred upon by FWS, ODFW and IDFG.

White Sturgeon
The Applicant must address the depletion of white sturgeon in Hells Canyon Complex reservoirs. The BLM requests that, within the white sturgeon plan, the Applicant develop a means to restore a healthy population within the reservoir. The addition of oxygen to the reservoirs may alleviate survival problems of young and adults, but it does not address the lack of reproduction.

The BLM requests that the Applicant study the possibility of installing a generating plant on the Oxbow Bypass Reach that would pass enough water to stimulate white sturgeon spawning flows. A generating plant would recover the lost generating capacity that spilling into the reach to create sturgeon spawning flows would require. A venting system for adding oxygen at the facility should also be studied.

Food Base and Invertebrates
The BLM requests that the Applicant provide an assessment of the potential impact of the HCC on the expansion of the New Zealand mudsnail. The Applicant should address the potential impacts on native biota in this study.

The BLM requests that the Applicant consult with the FWS concerning inventories for the Bliss Rapid snail in the Hells Canyon Reach that may be affected by the HCC.

Flow
The BLM requests that the Applicant model a full range of flow scenarios and address the potential impacts to resources for each one. The Applicant has not provided a reasonable range of flow alternatives. This must include the NOAA Fisheries requirements.

Water Quality
The BLM requests that the Applicant develop a complete water quality monitoring plan to be included in the final license application.

Geomorphology and Sediment
Fund an independent, scientifically sound, and statistically accurate study of the sediment resources that contribute to the Hells Canyon Reach of the Snake River.

Conduct a scientifically sound and statistically accurate study of the 62,000 acre feet of sediment stored in Brownlee Reservoir to determine how much of it would contribute to the replenishment of those sediment resources being lost in the Hells Canyon Reach.

Conduct a scientifically sound and statistically accurate assessment of the amount and size of sediment currently trapped in Oxbow and Hells Canyon reservoirs.

Conduct a scientifically sound and statistically accurate study of terraces, beaches, and bars in the Hells Canyon Reach. This study would be designed to determine the cause of erosion and what measures can be taken to prevent or mitigate for losses. If the study

indicates that hydropower ramping is causing the erosion, it may be possible to develop alternate operational scenarios to alleviate the problem.

Flow Below the Mouth Of the Salmon River
The BLM requests that the Applicant provide information on the impacts to physical and biological resources below the mouth of the Salmon River to Captain John Creek for all modeled flow scenarios.

TERRESTRIAL ISSUES

Considerable information has been gathered by IPC both by professional studies and by interviewing long time residents. However these have limited use because the impacts of the project are not fully analyzed in the studies and the DLA. This information is good as a baseline but additional information and analysis is needed before the impacts can be established and mitigated.

IPC suggests an interdisciplinary team is needed to assist in the long term management of the canyon. BLM would expect to see within 3 months of issuance of a new project license the establishment of a Terrestrial Working Group for the purpose of consulting with IPC in the design of restoration, protection, management and monitoring plans review and evaluation of data, and in the development of adaptive management or other recommendations. The Forest Service, Bureau of Land Management, Oregon Department of Fish and Wildlife, Idaho Department of Fish and Game, Fish and Wildlife Service, the Idaho Power Company, Tribal governments, and those Non-Governmental Organizations whom have expressed an interest would be invited to participate, at a minimum. IPC would provide funds to support this group and would implement their required management actions in accordance with this group. IPC would also maintain, and make public, records of consultation, and would forward those records with any recommendations to the appropriate agencies and FERC. The groups shall establish communication protocols to facilitate interaction between group members, which allow for open participation, peer review, and communication between all parties.

In December, 1999, BLM identified eight issues relating to terrestrial vegetation and animals. Most of the issues have been discussed but analysis of project impacts on these issues is incomplete. IPC did not address the continued loss of low elevation deer winter habitat, low elevation cliff habitat, low elevation riparian habitat, special status species, upland shrub lands, the effects of changed water quality to terrestrial species on the continual effects of the project on Bald Eagles. The scope of the area delineated by BLM was from Weiser, Idaho to Captain John Creek below the mouth of the Grande Ronde River. The study areas did not include the Snake River from Salmon River to Captain John Creek making all studies that included the free flowing river incomplete until impacts on these BLM lands are complete.

The BLM recommends that IPC complete the tracking matrix that was begun earlier in the TRWG, to fully disclose all identified issues to evaluate on-going and continued project impacts, and demonstrate how IPC will mitigate these impacts. IPC, by limiting the issues identification and impact analyzes in the DLA, also limits its suggested PM&E measures to mitigate those issues and impacts.

T&E and SPECIAL STATUS SPECIES

Some analysis was done by IPC but assessment of continuing project effects from Bald Eagles and Idaho ground squirrels is incomplete. IPC should provide this analysis of inundated islands, roost trees and cliff habitat, residual DDT impacts to Bald Eagles and appropriate mitigation in the FLA. IPC must comply with the bald Eagle Recovery Plan. IPC should also incorporate a monitoring and adaptive management plan from these and future special status species.

The Southern Idaho ground squirrel is impacted where IPC service roads cross through a squirrel colony. People can recreationally shoot squirrels easily along this road. A road management program and road closures could reduce the shooting problem.

Other Raptors
For those raptors requiring large trees for nesting, perching or roosting, habitat is very limited. All large trees in the HCC must be protected and an active tree (pine and cottonwood) planting program initiated. Protection will be needed to insure survival of planted and existing trees. Agencies and IPC should coordinate and share information on raptor survey's to improve management.

Transmission lines, electrocutions and bird collisions have been addressed in detail but regular surveys for dead birds are limited or non-existent. Documentation of mortalities were made incidental to other work. Therefore, to assure accurate documentation, IPC should systematicly inventory frequently enough to locate birds before scavengers remove the evidence. Mitigation of transmission lines causing mortalities will be necessary.

UPLAND HABITATS

18 CFR 4.51 (f) (3) (iv) requires an analysis of "any anticipated continuing impact on fish, wildlife and botanical resources of the continued operation of the project…" Neither of the two flow scenarios that IPC analyzed address the continued affect of the inundation of 10,000 to 12,000 acres of lands for the next 30 years. BLM requests that this analysis be conducted prior to the filing of the final license. It should include impacts to the continued inundation of critical riparian habitat on the main stem of the Snake River as well as the tributaries, and critical big game winter range. IPC should specify how many of these acres on BLM as well.

IPC must specify the total acres of upland habitats inundated by the reservoirs and those that are on BLM lands. As these acres are low elevation lands they cannot be replaced. Improved uplands would be most beneficial to wintering big game and upland birds. Acquisitions most likely would be at least a 2:1 ratio to compensate for the lack of availability of high quality habitats.

BLM applauds IPC's analysis of the fluctuation zone impacts and offer of mitigation for deer winter range acres. These acres should be added to the acres for compensation of continuing impacts as detailed above.

Conservation Reserve Study
A coordinated resource plan is the best way to succeed in future management of Terrestrial Issues and may be essential to bring all parties together. Partnering options are important with land management agencies and with private land conservation groups. Private groups can advise while land managers make decisions. Also, land managers are best suited in advising which lands are most important for purchase to achieve PME's. IPC should clearly articulate the members and tasks and funding for this group in the FLA.

Upland Birds
More detailed habitat information from IPC is needed to make good management decision on the key habitats used by sage grouse, sharp tailed grouse and mountain quail. Further project impact analysis is needed from IPC. Also roads passing through grouse leks reduce grouse productivity. A road management and transmission lines plan are needed from IPC in the FLA.

Big Game Animals
Big game in the HCC include; bear, cougar, mule deer, white tailed deer, Rocky Mountain elk, bighorn sheep, mountain goat and pronghorn antelope. Antelope have not been discussed but do exist from the Burnt River south along the Oregon shoreline to Weiser and south. Antelope use of upland and steppe-shrub habitats most likely were affected by the original inundation and the continuing affects should be addressed by a further analysis.

Minimal discussion was presented about Rocky Mountain elk in the studies. None of the documents contain information concerning State management objectives compared to current population levels. Elk winter the full length of the HCC. The Snake River road impacts wintering elk through harassment. Elk may try to winter in Brownlee tributaries where they receive less harassment. IPC must quantify current winter population densities of elk limiting factors affecting population densities, impacts attributable to HCC and compare these figures to the States' management objectives.

Both the Rocky Mountain bighorn and the California bighorn sheep have been discussed in the various documents. The Rocky Mountain bighorn occupies habitat from Lookout Mountain to the Grande Ronde River. Most habitats were identified but the winter range along the west shore of Brownlee pool has the same conflicts that occur with deer and elk

wintering in this area. It would be helpful if IPC would better delineate where their studies were done and identify bighorn impacts and mitigations for the south end of the HCC.

Discussion of population and abundance of mule deer does not relate to current population densities to either Oregon or Idaho management objectives for wintering deer herds. The objectives for management of these populations are also not disclosed.

PM&E's were displayed in Exhibit 3 that included land acquisition. To be effective, this land must be capable of producing desired vegetation in quantities capable of supporting wintering deer, elk and bighorn sheep at management objective levels. If adjacent lands are in public ownership, then improvements could be made to this land that would support actions on the acquired lands. The information, although incomplete, is good baseline data for future research or choosing land for acquisition. IPC should coordinate with BLM closely before purchase.

An additional study is needed to evaluate the effects of reservoir icing on mule deer when the reservoir is actually iced over.

RIPARIAN HABITATS

18 CFR 4.51 (f) (3) (iv) requires an analysis of "any anticipated continuing impact on fish, wildlife, and botanical resources of the continued operation of the project…"Neither of the two flow scenarios that IPC analyzed address the continued affect of the inundation of 10,000 to 12,000 acres of lands for the next 30 to 50 years. BLM requests that this analysis be conducted prior to the filing of the final license. It should include impacts to the continued inundation of critical riparian habitat on the main stem of the Snake River as well as the tributaries, the critical big game winter range by land ownership and state.

Riparian habitat is used by most wildlife species sometime during the year. On site replacement of the lost acres that continue to be impacted will be difficult because of the shoreline Brownlee reservoir has limited capability for growing riparian. Due lower to elevation and at least that the original riparian acres were on relatively flat ground, we calculate it will take 2 acres to replace one. Most opportunities to restore riparian is in reservoir tributaries and the Powder River Arm as well as tributaries to the 3 reservoirs. Much of the land with potential to grow riparian may be on private land. IPC has proposed to acquire 731 riparian acres for mitigation. IPC's analysis for riparian habitat affected in the fluctuation zone is interesting but more details need to be disclosed regarding IPC proposed number of affected acres.

Riparian habitat is an important feature for erosion control, wildlife food and cover. Efforts to restore riparian should first be made on reservoir tributaries and the Powder River Arm. Riparian habitat along Hells Canyon and Oxbow reservoirs needs protection from dispersed recreation. All riparian areas need protection from grazing, vehicles and noxious weed spread. Vehicles can reduce habitat effectiveness by destroying and

fragmenting habitat. Brownlee Reservoir lacks adequate riparian habitat. IPC should work cooperatively with other owners to re-establish cottonwood and other important riparian species as well as to protect and enhance all riparian communities in the HCC.

Bank erosion has greatly diminished the possibility of growing riparian vegetation along much of Brownlee Reservoir. The alluvial soil deposits below tributaries are potential sites for establishment of riparian vegetation. Roads and soil disturbance in the adjacent uplands contribute to soil erosion making re-vegetation and weed control necessary. Re-vegetating eroded areas will be difficult because of site conditions and require the attention of vegetation specialists. Road closures or restrictive road OHV management most likely will be necessary to control road and trail erosion and the spread of noxious weeds. IPC should describe how they will fund these analysis and rehabilitation efforts.

Songbirds

The most important habitat for the majority of birds is riparian, which is used for nesting, feeding and escape cover. This has been well documented in the studies. However, IPC is not clear about how much riparian is present, what the land is capable of producing, and what the effectiveness is of existing riparian? The existing riparian habitat has been degraded by the number of roads passing through or running parallel to the riparian zone. IPC should disclose these impacts and mitigate appropriately.

WaterBirds

The reservoirs have changed water bird habitats by creating large mudflats at times of drawdown that are used by migrating shore birds and waterfowl. However inundation has eliminated island habitat. The island habitat is important for nesting, resting and feeding waterfowl. Islands were also used to escape from predators. Islands could be constructed in the west end of the Powder River Arm. Improved riparian areas would improve nest opportunities and success. BLM agrees that improved habitat on the remaining Snake River islands is necessary. Shoreline grazing on the reservoirs needs to be controlled and large fast growing trees should be planted for colony nesting birds. Emergent and submergent vegetation was not discussed and should be analyzed. This is important for invertebrates which are an important food for fish and young waterfowl. IPC should incorporate these mitigations into their FLA.

EROSION / ROADS / RECREATION

IPC acknowledges erosion as a project impact to the reservoirs but does not adequately address location or cause. IPC suggests 90 acres would be provided for mitigation of erosion impacts. However there is not adequate data provided in the DLA to evaluate the location and cause of these impacts.

IPC is proposing a project boundary change (even though it is not disclosed in the DLA). This reduced boundary most likely would remove many of these impact areas without appropriate mitigation. This is not acceptable to BLM. IPC must disclose this analysis and provide mitigation.

Roads have significant impacts on many resources by limiting the productivity of habitats and wildlife populations. Roads contribute to erosion, habitat fragmentation and encourage the spread of noxious weeds. Roads and road-caused erosion have impacts not only along the reservoirs and tributaries to the reservoirs, but also on the uplands.

Vehicle use during the rainy season or when daily freezing and thawing takes place results in soil movement. Road management must be implemented to gain control of soil movement and shoreline vegetation must be re-established to stabilize riparian zones. It is expected that control of undesirable vegetation will be necessary and likely require more than one treatment to allow for the establishment of shoreline trees and shrubs. These efforts should be conducted along the reservoir and the reservoir tributaries. To gain control of upland erosion, roadbeds and shoulders may need seeding and seasonal road closures. If IPC roads are not needed for O&M they should be closed permanently. Roads resurfacing could have a negative effect on big game winter range . During severe winters deer could be chased on to reservoir ice increasing deer mortality.

Mitigation could include closing the Snake River road during the winter for 6 or 8 miles near Swedes Landing or maybe not plowing snow on this road in severe winters thus allowing snow to close the road. The roads along Oxbow and Hells Canyon also reduce big game use on riparian vegetation, and vehicle traffic actually kills many animals. The Homestead road also reduces big game winter range security and effectiveness. Limiting dispersed camping and improving developed campsites would improve habitat if roadsides were fenced to restrict vehicle uses. Songbird use of riparian habitat has also been reduced with increased recreation use.

IPC should join other agencies in developing a road management plan for the canyon. IPC should contribute to operation and maintenance (O&M) costs for all main access roads into the canyon including the Snake River road and the Homestead Canyon road in Oregon, and the Steck road in Idaho because their use is directly related to use of the project.
Dispersed recreation can have negative impacts on terrestrial resources by causing erosion, damaging riparian habitat and harassment of wildlife. The primary problem is unrestricted camping and recreational uses that damage vegetation. Vegetation removal occurs when vehicles drive off roadways, or humans dig holes for toilets or fire pits, cut trees or shrubs for various reasons and create pathways by foot traffic. Riparian vegetation is limited by soil compaction, vehicles, foot traffic and by cutting and removal. By reducing vegetation densities, erosion can increase from wind or water. Recreational use in or near riparian vegetation limits or displaces wildlife use. Uncontrolled camping along Hells Canyon reservoir has reduced mountain quail habitat effectiveness.IPC operations are directly responsible for this use therefore IPC should assist BLM in the management and operation of this recreation use. See the Recreation Section for details.

TRANSMISSION LINES

Transmission lines and the transmission line service roads often have negative affect upon terrestrial resources. Service roads especially if unmaintained, can be responsible for erosion, weed spread and harassment of wildlife as mentioned in the road section. Limiting public use of these roads would reduce impacts and stress on wildlife.

An extra effort must be made to determine the extent of impacts of transmission lines with raptors and other large birds. More research may be necessary with people frequently checking areas of high bird use to locate dead birds before scavengers remove them. Incidental observations are not adequate to document the extent of this impact to birds. A program to determine line visibility and then implement mitigation could help to reduce bird collisions with transmission lines. Erection of nesting poles for raptors as well as changing designs or modifying existing problem poles could reduce electrocutions.

It has come to the attention that IPC has currently filed for a Right-of-Way (ROW) on 5 transmission lines that are in the DLA. In the event that FERC determines that the ROW's for transmission lines do not meet the criteria established by sec.3(11) of the Federal Power Act and other criteria established by FERC and does not allow them to be relicensed and IPC and seeks to authorize them under Title V of the Federal Land Policy and Management Act of October 21,1976 (FLPMA), BLM may require IPC to provide additional information in order for the BLM to comply with various federal laws and mandates (National Environmental Policy Act (NEPA), Endangered Species Act (ESA), National Historic Preservation Act (NHPA), Federal Land Policy and Management Act, (FLPMA), etc.). Additional information may also be required from IPC for the BLM to develop performance stipulations in a right-of-way grant(s) to mitigate impacts of the transmission lines to various resources and programs on the public lands including, but not limited to, visual resources, fire prevention/control, noxious weeds, public access, soils, wildlife, special status species, cultural resources, fisheries, water resources, vegetation, hazardous waste, and conflicts with other uses/users.

NOXIOUS WEEDS

Noxious Weeds can have serious impacts on Idaho ground squirrel, big game habitats, upland bird habitats and riparian vegetation. All land management agencies, counties and private landowners face serious problems and consequences if noxious weeds are not controlled. It is incumbent upon IPC and land management agencies to work together to prevent and control infestations. As the county governments work with private landowners for weed control, IPC and land management agencies should attempt further cooperative efforts with the counties.

Upland habitats have been seriously impacted by medusa head wild rye and other exotic weeds reducing the productivity of big game winter range and upland bird habitat. Range

rehabilitation efforts would require control of medusa head and other weeds. A key method for weed spread is motor vehicles (pickups, cars, OHV's etc.). Restricting off road vehicle would aid in reducing the spread of noxious weeds. Also, regular control of weeds on roadways would reduce weed spread. IPC should employ these methods in their preparation of a Noxious Weed Management Plan.

The BLM concurs with the conclusion that ongoing continued operations can still contribute to the spread of noxious weeds along the reservoir and downriver reaches. The BLM will expect IPC to participate in the prevention, suppression and containment of noxious weeds.
IPC should identify and implement the following activities on BLM lands associated with project-related roads, recreation use areas and trails:

- Inventory and map noxious weed presence, distribution, and density.
- The initial inventory should be completed within one year of issuance of the new license, and annually through out the length of the license or as defined by the BLM.

- Develop and implement a monitoring program for noxious weeds that includes evaluating the effectiveness of prevention, control, and eradication measures;

- Annually detect and eradicate small existing populations and new introductions of noxious weeds;

- Control, suppress, and contain large-scale infestations of noxious weeds, especially those that overlap different ownerships or responsibilities;

- Maintain native plant composition and re-vegetate weed infested and disturbed sites with native species;

- Prevent invasion of new noxious species by limiting weed dispersal, minimizing soil disturbances, and properly managing desirable vegetation;

- Complete all necessary environmental analyses.

- Prior to any noxious weed control activities on BLM lands, the licensee shall obtain approval from the BLM;

- Coordinate with the BLM to ensure that exotic and invasive vegetation objectives are met across administrative boundaries.

Continuing Impacts Analysis

IPC should identify pre project habitat conditions, acres by vegetation type (upland/ riparian) and by land ownership, and islands and cliff habitat. IPC should recognize the value of the continued loss these habitats for the life of the new license and provide appropriate compensations. This will most likely require at least a 2:1 ratio to accommodate acquisition of required habitats.

Project Boundary Analysis

IPC must analyze the lands to be excluded by the proposed new project boundary, disclose the project impacts in these areas and provide appropriate mitigation or compensation to BLM prior to the change in project boundary. These impacts include, but are not limited to; erosion, riparian or upland habitat impacts, culverts that do not meet fish passage standards or others.

Below the Mouth of the Salmon Analysis

No Studies except on bats were conducted below the Salmon River along the Snake River to the Grande Ronde River. Issues to be resolved are erosion, riparian changes, nesting waterfowl and upland vegetation. All of these issues can be effected by fluctuating water levels as well as loss of sediment. Although the Salmon River supplies important sediment it does not replenish all that remains trapped in the HCC.

IPC should analyze impacts to BLM resources including, but not limited to, erosion, riparian changes, upland vegetation below the mouth of the Salmon River to Captain John Creek and provide mitigation and / or compensation for these impacts.

ADDITIONAL STUDY NEEDS or INFORMATION REQUESTS

DDT/DDE Impacts
What are the impacts of DDT/DDE upon Bald Eagles and their eggs? Is DDT in the sediments in the still potent enough to affect fish and therefore eagle reproduction by eating fish from the HCC?

Eagle Mortalities
There is a need for a more accurate documentation of eagle mortalities. IPC shouls be responsible for systematic inventories frequent enough to locate birds before scavengers remove the evidence.

Mountain Quail Research
Additional research is needed concerning Mountain Quail habitat requirements. If State agencies transplant Mountain Quail to HCC, then IPC could incorporate researching habitat preference for the released birds.

IPC Lands That Provide Expansion Opportunities
Identify IPC lands that provide opportunities to expand riparian, improve deer, elk and bighorn sheep winter range.

Island Construction
Investigate opportunities to construct islands to compensate for the continuing impacts of flooded islands.

Bighorn Sheep Issues
Bighorn issues for sheep wintering from the Powder River to the Burnt River need to be disclosed, evaluated and mitigated. Issues could include; winter range condition, human-bighorn sheep conflicts, etc.

Elk Winter Range
Elk winter range is poorly defined and issues not identified; winter range condition, human-elk conflicts, etc. IPC should complete studies to describe these impacts and mitigate accordingly.

Mercury Contaminates
Study mercury contaminates and determine if and how it moves through reservoirs as well as what impacts there are to Terrestrial species.

Bald Eagle Recovery
IPC should analyze the continuing effect of the project on Bald Eagles including loss of island habitats, roost trees, new transmission line construction. IPC actions should be in compliance with the Bald Eagle Recovery Plan.

Mule Deer Ice Entrapment Study
Conduct a mule deer-ice entrapment study when the reservoir is entirely frozen over to evaluate project impacts and mitigation.

Vegetation
Conduct a study and inventory of submergent and emergent vegetation and its value to wildlife. Determine the continuing impacts of the loss of this vegetation.

The following are the additional studies needed that were identified by the state and federal agencies, general public, Indian tribes, non-governmental organizations and local governments. At the Terrestrial Resource Workgroup sessions (the numbers come from

the workgroup matrix): IPC should follow-up on these commitments and complete these analysis.

n **8.2.37**
Ecology of Chukars and Gray Partridge in the reservoirs reach of the HCC. Description: Determine interaction of chukar and gray partridge with in the reservoirs in Hells Canyon. Specifically, identify sources of mortality and migration barriers.

nt **8.2.37a**
Ecology of Chukars and Gray Partridge in reservoirs reach of the Hells Canyon Complex. Description: Fy/T23 What about a follow-up winter study if upland game birds? (p.63)

n **8.2.38**
A habitat assessment of Mountain Quail in the Hells Canyon area; Description: Evaluate current habitat conditions adjacent to the reservoirs in Hells Canyon for mountain quail. (use Lenny Brennan's mountain quail model.)

nt **8.2.38b**
A survey of Mountain Quail below Hells Canyon Dam. Description: S14/T9 Recommends a mountain quail survey above Hells Canyon Dam/ (pp.110)

n **8.2.39**
A habitat assessment of Sage Grouse in the Hells Canyon Area and along transmission lines associated with the Hells Canyon Complex. Description: Evaluate current habitat conditions for sage grouse adjacent to the reservoirs and the transmission lines associated with the Hells Canyon.

n **8.2.40**
A habitat assessment of Sharp-tailed Grouse in the Hells Canyon Area and along transmission lines associated with the Hells Canyon Complex. Description: Evaluate current habitat conditions for sharp-tailed grouse adjacent to the reservoirs and the transmission lines associated with the Hells Canyon complex.

n **8.2.41**
A delineation of Mule Deer, Bighorn Sheep and Elk winter range in Hells Canyon Area. Description: Describe winter ranges in Hells Canyon for big game species and identify critical habitats. Determine the juxtaposition of these habitats to the Hells Canyon Complex. A specific study to identify elk winter ranges and the location of these elk winter ranges relative to the Hells Canyon Complex was not undertaken by IPC.

nt **8.2.44**
A study of previously identified losses to natural resources as a result of the construction of the Hells Canyon Complex. Description: F3/T4 What losses or potential losses were identified by agencies and tribes for fish and wildlife resources and their habitat at the time of licensing that weren't addressed in original license. (p.42)

nt **8.2.47**
a study of contaminates in wildlife species. Description: SO6/T26 Contaminants in HC wildlife (see also p. 169) (p. 162). IPC on March 31, 1998, commented that if contaminants were identified in aquatic studies this could be a future study.

nt **8.3.9**
Comparison of riparian habitat above and below the Hells Canyon Complex. Description: SO6/T17 Studies should compare (quantify) riparian vegetation of reservoirs to downstream areas and mitigate for differences. (see also #4, p.162; p. 165) (last paragraph p. 162).

nt **8.3.10**
A study of reclamation techniques in dewatered reservoirs. Description: SO6/T1 Evaluate methods to re-vegetate barren reservoir shorelines (see also p.165 last paragraph) (p.162).

n **8.5.7**
An evaluation of compliance with Terrestrial License Articles Issued for the Hells Canyon Complex. Description: Identify PM&E compliance with articles issued under original Hells Canyon License.

n **8.5.8**
A summary of documented Issues Identified by agencies during initial licensing of the Hells Canyon Complex and decisions made by FERC. Description: Summarize potential impacts identified by resource agencies at time of original licensing of the Hells Canyon Complex, but not incorporated in the license articles.

CULTURAL

Programmatic Agreement (PA)
Programmatic Agreement: The Programmatic Agreement prepared by FERC should include BLM as a full signatory party to the agreement. The BLM has responsibilities for compliance with NHPA, ARPA and NAGPRA on lands under its jurisdiction. The agreement should be completed and signed before implementation of a Cultural Resource Management Plan or any ground disturbing activities on federal land.

Cultural Resource Management Plan: The CRMP should be revised and completed in consultation with BLM before it is implemented. The CRMP should contain more specific information and include a more comprehensive adaptive management program. The plan should provide for:

- Measures for inventorying areas in the (APE) not covered during the initial survey. In addition to measures for inventorying areas at the project implementation level, Applicant should plan and conduct systematic, ongoing inventories of draw down areas, using a design adaptive to changing

conditions, until all areas exposed during such events have been examined. Applicant should plan to conduct periodic re-inventory of areas that had poor to zero visibility.

- Procedures for review of operation, maintenance, and construction activities.
- Agreement about the types of undertakings and classes of affected properties that will trigger case-by-case review; and types of undertakings that would be excluded from inventory or review.
- Measures for avoiding or mitigating adverse effects to historic properties. Although such measures are generally addressed in the CRMP, the triggers and timing for mitigating adverse effects need clarification.
- The process to resolve adverse effects to properties that may be discovered during project implementation. This is addressed by Standard Procedure two in the CRMP.
- Monitoring Procedures: The monitoring plan (SP 7) needs changes and further refinement. In addition to monitoring sites for condition changes, the plan should provide for monitoring protection projects (stabilization or other mitigation such as road closures) for implementation over the term of the license. The applicant should sponsor a program of annual monitoring on the three reservoirs for the first three years, and then re-prioritize; or continue annual monitoring until other protection and mitigation measures have been designed and scheduled for implementation. A more detailed monitoring plan should be mutually developed and agreed upon between the Applicant and BLM before the monitoring program is implemented, not after the first six years have passed. Then, the procedures and monitoring plan can be reviewed and evaluated by all parties for the next cycle.
- Enforcement: BLM recommends that Applicant should involve BLM federal and Oregon state law enforcement personnel in the monitoring plan and its implementation. BLM recommends that Applicant should support additional law enforcement patrols, for example during peak use weekends. This would facilitate protection of cultural resources and discourage casual vandalism.
- Procedures for dealing with human remains and other items subject to the NAGPRA. The SP 3 description needs clarification of roles and responsibilities, and some additional detail about securing the site if reburial is needed.
- A commitment to employ a Cultural Resource Manager and Cultural Resources Coordinator for the project that meets the Secretary of Interior's Standards and Guidelines for professional qualifications.
- The CRMP to specify that for all activities conducted by professional archaeological or historical resource contractors or by professional employees for the Applicant, on lands administered by the BLM, the appropriate permit will be obtained from the land manager under Federal Land Policy and Management Act (FLPMA) or Archaeological Resource Protection Act (ARPA). The necessary fieldwork authorization will be obtained from the field manager prior to the commencement of fieldwork.
- Provisions and funding for curation of archaeological/historic materials and associated records from Oregon sites, at a designated Oregon repository

(Oregon State Museum of Anthropology, at University of Oregon) that meets federal curation standards (36 CFR 79); and acknowledgment that the materials are federal property.

- Provisions and funding for curation of archaeological/historic materials and associated records from Idaho sites, at appropriate designated repository in Idaho that meets federal curation standards (36 CFR 79); and acknowledgement that the materials are Federal property.
- Procedures for maintaining the confidentiality of site location information protected under the Archaeological Resources Protection Act (ARPA).
- Measures for addressing interpretive development and educational efforts as required by Section 110 of the National Historic Preservation Act (NHPA). The interpretive plan should include funding to provide heritage protection messages and/or interpretation at existing and future developed recreation sites on BLM land, in consultation with the BLM and Tribes.
- The Applicant to make a provision in the general management plan for paleontological discoveries and/or mitigation in the event that a locality may be impacted by project operations. Provisions should be consistent with BLM Manual 8270, including permitting.

Additional Study Needs

Additional information needs include:

- The Area of Potential Effect (APE) should be expanded. Additional inventories should be conducted to include areas of associated dispersed recreation; 1/4 mile up perennial stream side drainages, hiking trails along the Oregon shore of Hells Canyon Reservoir; all draw down zones; transmission line access and service roads; and the free-flowing Snake River downstream from the Salmon to Captain John Creek.
- Disclosure, evaluation and mitigation on the erosion effects for Snake River archaeological properties downstream of Salmon River to Captain John Rapids;
- The Applicant should complete the investigation needed to make final determinations of eligibility for sites identified as "potentially eligible" (eg., historic research and/or testing or remote sensing techniques).
- The Applicant should conduct additional studies if necessary, or consult with the Tribes, to establish whether or not the identified traditional locations are National Register-eligible Traditional Cultural Properties. (National Register Bulletin 38).
- The Applicant should conduct a professional assessment of paleontological potential, paleontological reconnaissance of the three reservoirs area; and a paleontological discovery protocol consistent with BLM requirements.

RECREATIONAL ISSUES

Recreation Use – Past and Current

Use data was collected over a six year period, 1994 to 2000. The on-site survey as well as mail-in survey was extensive. However, BLM has a concern that the timing of the survey did not cover a representative period that would reflect use over the life of the license. There are highs and lows in use cycles driven by many factors. Two of these factors; water level and fish populations, are prevalent on Brownlee Reservoir. Since these two factors cause wide swings in use levels, it is important to identify an optimum use level tobe managed for. The given survey period probably does not portray that optimum level.

Reservoir Levels

Fluctuations of the water level on Brownlee Reservoir has significant impacts on the recreation resource. The technical reports adequately portrayed these impacts. However, the Applicant either implied or stated explicitly, that full pools are preferable for power production and drawdowns were the result of outside pressures and needs. Due to discrepancies between various sources (IPC, CORPS and NOAA Fisheries), it is not clear when the drawdowns are outside IPC's control and when the drawdowns are at the discretion of IPC. It is important to clearly define this point so that appropriate dicessions regarding BLM managed resources can be reached.

Developed sites

The BLM has two developed sites, Steck Park in Idaho, and Spring Recreation Site in Oregon. Technical reports (E.5-2, 5-4, 5-6, and 5-8) do not address the direct impacts to these two sites caused by project operations. They do point out several interesting findings: 1) existing boat launching facilities are unusable when the reservoir is drawn down more than 17 feet. Since they are located at the upper end of Brownlee Reservoir, they are among the first to be affected, 2) use has dropped off dramatically at these two sites since the early 1990s, and 3) visitor satisfaction with the facilities is lower than at any other developed sites. The reports do not address the issue of what percentage share does IPC have for the capital improvements and ongoing operations and maintenance of these sites.

The impacts caused by current operations (reservoir level issues) do not adequately assess impacts to recreation use at developed sites. The 1980's and early 1990's were the golden years of the crappie and bass fisheries on Brownlee Reservoir. Many of the improvements on the upper reservoir sites were done to meet the needs of these users. Both of these sites would not have been developed to their current extent if it hadn't been for the fishery and how the reservoir was managed at that time. Current reservoir management has had an adverse impact on visitation at Steck Park and Spring Recreation Site. This seems to have been down played in the reports and the need for PM&E measures (O&M and enhanced site improvements) on the upper Brownlee Reservoir.

Steck Park in particular would not have been developed or upgraded if it hadn't been for the reservoir. Yet, IPC is silent, or disclaims its responsibility to help with maintenance or development enhancements at this site. Idaho Power should analyze its role at Steck Park, including their cost sharing responsibility for operation and maintenance of the facility. This recommendation is made because this site was created solely for reservoir recreation and is adversely impacted by IPC's reservoir management (draw downs).

Another significant area of concern is the need for marina/services facilities (57% of Brownlee users). Although this is not generally perceived to be a federal or state government role, it is a role for the private sector to meet. Because Idaho Power controls the surface and adjacent shorelines, it is a responsibility of the Company to address this need and how it should be met in the license application. Reference is made to provide improvements for moorage facilities, but this is not the same as marina services.

Dispersed Sites

Dispersed site use is adequately inventoried in Technical Reports E. 5-2 and E.5-9. The sites are mapped so that future monitoring can be consistent. Use data has been compiled for the period from 1994 through 2000. This survey period is not representative of the use over the life of a license, which has been shown to have dramatic swings up and down. Therefore, caution should be used in drawing conclusions from the survey data and using the information effectively regarding future management.

One hundred thirty-nine dispersed sites were inventoried that impact over eighty acres of shoreline. 79% of these sites have at least one shore access point. They have very few trees and those that exist have been damaged; in addition to large amounts of litter and waste. Use at dispersed sites is significant even though developed sites draw overall higher numbers. User preferences for future management are not well defined regarding dispersed sites. However, the studies did find a lower satisfaction level for the dispersed sites in general.

IPC has proposed several PM&Es that address many of the identified issues regarding dispersed sites. Implementation of those PM&Es should significantly reduce the negative aspects of dispersed recreation.

A major omission is the exclusion of BLM lands along the Snake River from the northern edge of the HCNRA to Captain John Creek by not including them in the study area boundary. These lands are directly affected by reservoir operations. In fact, the case can be made that there is more recreation use on the flowing section of the Snake below the HCNRA than there is between Hells Canyon dam and Cache Creek. Consequently, there is more impact on recreation users below the HCNRA than on recreation users in the current study area.

There does not appear to be a clear integrated approach for future dispersed site management and conflicts with other resources, such as riparian habitat reduction, increased erosion, wildlife interactions, and fisheries impacts. The Technical Reports

sited above stand-alone without assessing the potential conflicts that can be found in other Technical Reports.

Trails/Trailheads

Although most of the recreation occurring in the HCC is water based, the opportunity to enhance the recreation experience exists in a number of areas. There are opportunities to develop trails within the HCC that have their trailheads close to developed sites on the reservoir. Currently, there are informal trailheads that are dispersed along the access roads adjacent to the reservoirs that are frequently used by reservoir recreationists during the major recreation season and by hunters during the fall season. Trails also play a major role in satisfying needs of boaters that beach along the reservoir shorelines and do short hikes. IPC recreation studies found that recreationists wanted more hiking trail opportunities (26%) and more biking/OHV opportunities (27%). Yet, there appears to be no PM&E measures recommended to meet the desires of over one forth of the recreation survey respondents.

One idea that has been put forth is to assess the feasibility of a "Snake River Breaks" trail that would essentially parallel the reservoirs on the Oregon side, from Farewell Bend to the Hells Canyon Wilderness. A trail such as this may not be feasible currently, but through the life of a new license, it may. The Adaptive Management Plan should respond to this trail need.

Rivers

Even though the majority of lands below Hells Canyon Dam are managed by the USFS, BLM does administer two wild and scenic rivers that are affected by the HCC. The Grande Ronde River in Oregon, and Lower Salmon River in Idaho join the Snake River near the HCNRA boundary, which is the designated study area boundary. No study assessed the potential impacts to these rivers or the associated recreation resource. Boaters entering the study area from the Lower Salmon River are not accounted for in any of the studies. The number of float boaters entering the Snake River from the Salmon has exceeded the total number of float boaters entering the Snake from all other portals combined since 1997, yet this group of recreation users is not considered in any of the studies.

Since nearly all of the beach camping areas are found below the mouth of the Salmon, it is logical that the impacts from flow fluctuations would be greatest on recreation users below the mouth of the Salmon. This is not addressed in the studies.

Heller Bar is the primary takeout facility for float boaters coming from the three rivers plus the primary put-in and take-out site for jet boaters. High and low flow fluctuations on the Snake River affect the boat ramps and create conflicts between floaters and jet boaters. Water levels are constantly changing due to releases at Hells Canyon Dam. An additional two-lane boat ramp is needed in the Heller Bar area to separate use between floaters and jet boaters.

Another potential impact is that as water levels become too great or too low for certain users, they become displaced and look to the Salmon and Grande Ronde for their substitute whitewater pursuits. IPC may have some level of responsibility for this recreation resource.

We recommend Lower Salmon River boaters and recreation users below the Hells Canyon National Recreation Area be considered when impacts on recreation are discussed and mitigation is considered. This is a larger population of users than the population that is addressed in the referenced studies, and this large number of users should have a voice in the proceedings.

Safety and Law Enforcement
Safety and Law Enforcement needs are a significant issue in the HCC. With some seven different jurisdictions (federal, state and local), coordination is a concern. IPC took the initiative to bring these entities together to address this issue. The development of a single communication net (frequency) accessible to all will satisfy a number of concerns. In addition, establishing a Hells Canyon Law Enforcement Coordinating group will, in the future, help to standardize some of our laws/regulations and perhaps allow joint enforcement where needed. However, the law enforcement burden caused by public use of the reservoirs exceeds the abilities of local law enforcement agencies. IPC may have a greater responsibility than coordinating a "forum" for cooperation.

IPC, through PM&E's for Information & Education Planning, which includes signing, will also help address some safety issues in the complex.

Interpretative / Education
The proposal by IPC for information, interpretation and education meets the needs identified by recreation users and the RWG. IPC, via the Information & Education Plan and the Recreation Adaptive Management Plan, will meet the majority of recreation needs for these items. However, both plans must include the wildlife (terrestrial and aquatic) and cultural components in order for these needs to be fully met.

Visual Quality
The proposals by IPC for aesthetics mitigations meet the needs identified by the Aesthetics Work Group.

Roads / Access
The current transportation infrastructure serving the HCC is inadequate to meet existing needs. There is a major safety need that is overlooked in the draft application. The maintenance and enhancement of several roads within the project boundary needs to be addressed. The Steck Road, an eleven mile gravel road, west from Weiser to Steck Park; the Snake River Road, a forty-one mile gravel road, north from Huntington to Richland, the Homestead Road, a ten mile gravel road, north from Oxbow to the HCNRA boundary, and the Snake River road from Asotin to Heller Bar are all administered by small local road districts. The majority of traffic on these roads, year around, is induced by the reservoirs, the developed facilities on them, and access to dispersed sites on BLM

lands. There have been a number of accidents involving reservoir users because of road surface condition. The application is silent on this need even though it was brought to IPC's attention numerous times. This is both a safety and access issue that requires significant attention by the Company. PM&E measures should include safety needs on these roads, resurfacing where appropriate, and assisted maintenance.

In addition, campers pulling trailers and boats have reported damage to their equipment on an increasing basis. Use along these routes by recreationists going to sites in the HCC will increase, and the safety concerns of travelers driving over washboard surface roads will increase.

We believe that the license applicant needs to provide, or help provide, for the safe ingress and egress to the HCC. The current application is inadequate in this area.

Weeds
The RWG identified this to be an issue regarding the recreation resource. Weeds negatively affect recreation sites plus recreators contribute to the spread of weeds through transport. No recreation technical report specifically looked at this issue.

Operations and Maintenance
On-going operations and maintenance is a major concern for BLM. Past and current budgets have not been adequate to serve the recreating public in a quality manor. Several of the studies point this out in various ways, i.e. visitor satisfaction levels, litter and waste concerns, land impacts, etc. It is obvious BLM dispersed and developed sites are not meeting public expectations. IPC has not offered any O&M mitigation measures for non-IPC sites. Since these recreation sites exist only in response to the existence of the reservoirs, IPC may have a project impact responsibility beyond capital improvements.

It is interesting that IPC manages two popular sites located on BLM lands, Oxbow Boat Launch and Carter's Landing. IPC has built all improvements, managed and operated these two sites for many years without any assistance from BLM. IPC proposes to continue this arrangement through the future license. These two sites become an anomaly when compared to all other non-IPC sites.

Land Acquisition
The applicant is silent regarding possible land acquisition needs for recreation purposes. Technical Report E.5-2, Reservoir Related Recreation Use has collected data regarding use on private, IPC, and BLM sites. It is apparent several popular sites are located on private lands. The public is trespassing in order to access the reservoirs. Landowners have varying degrees of acceptance regarding this arrangement. IPC has some responsibility to correct this situation.

Additional Study Needs or Information Requests

Recreation Use

-identify an optimum (average) use level expected over the life of the license.

Reservoir Levels
-clarify Brownlee reservoir level management.

Developed sites
-build a bridge between technical reports and proposed PM&E's.
-address project impacts on Steck Park and Snake river to Captain Johns Creek.
-propose PM&E for marina and services facility.
Dispersed Sites
-integrated dispersed site management with all other resources in a detailed way.

Trails
-address need for motorized and non-motorized trails.

Rivers
-assess project impacts to Grande Ronde and Lower Salmon.
-assess project impacts to Heller Bar and establish IPC responsibility.

ECONOMIC ISSUES

The BLM provided professional economists to IPC's Economic Work Group.
Based on the initial discussions, the economics workgroup found the going difficult. There were several hurdles to overcome and some were never resolved to the satisfaction of all in the group. This made it difficult to speak one language or interpret causality effects based on market principles both consumer and firm behavior, or environmental economic principles. There was a general desire to portray the economic benefits derived from hydropower as well as the opportunity costs or lost natural resource values. It was unfortunate that the economics workgroup was never able to fully explore these natural resource values with the potential to shed light on the controversial issue that permeate the northwest landscape – fish and dams.
Without the appropriate economics analysis, it is impossible to prove whether costs exceeds benefits. BLM has provided 4 study descriptions for IPC to complete, prior to filing of the FLA.